

Final Examinations

on Algebra and Statistics



Model Examinations of the School Book



on Algebra and Statistics

Model 1

Answer the following questions :

1 Complete the following :

- 1 The S.S. of the equation : $(x^2 + 3)(x^3 + 1) = 0$ is , $x \in \mathbb{R}$
- 2 If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then $x =$
- 3 $]-2, 2] \cup \{-2, 0\} =$
- 4 The cube whose volume is 8 cm^3 , then the sum of all its edge lengths = cm.
- 5 The multiplicative inverse of the number $(\sqrt{3} + \sqrt{2})$ is in the simplest form.

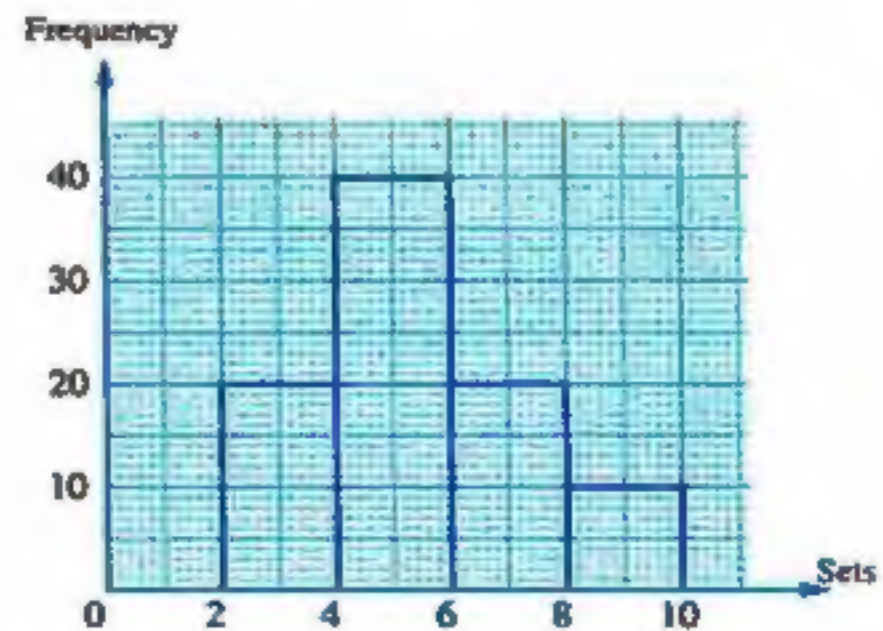
2 Choose the correct answer from the given ones :

- 1 If the radius length of a sphere is 6 cm. , then its volume is
 (a) $6 \pi \text{ cm}^3$ (b) $36 \pi \text{ cm}^3$ (c) $72 \pi \text{ cm}^3$ (d) $288 \pi \text{ cm}^3$
- 2 If the point $(a, 1)$ satisfies the relation $x + y = 5$, then $a =$
 (a) 1 (b) -4 (c) 4 (d) 5
- 3 $(2\sqrt[3]{2})^3 =$
 (a) 4 (b) 8 (c) 16 (d) 40
- 4 The median of the values : 34 , 23 , 25 , 40 , 22 , 4 is
 (a) 22 (b) 23 (c) 24 (d) 25
- 5 If the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 , k is 14 , then $k =$
 (a) 3 (b) 6 (c) 27 (d) 84

B In the opposite figure :

The value of the mode =

- (a) 4 (b) 5
(c) 6 (d) 40



3 [a] Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $x = \frac{3}{\sqrt{5}-\sqrt{2}}$ and $y = \sqrt{5}-\sqrt{2}$

, prove that : x and y are two conjugate numbers.

4 [a] The area of a square is 1089 cm^2 . Find the length of its diagonal.

[b] Find the S.S. of the inequality : $\frac{3x+1}{6} < x+1 < \frac{x+4}{2}$ in \mathbb{R}

, then represent it on the number line.

5 [a] The radius length of the base of a right circular cylinder is $4\sqrt{2} \text{ cm}$. and its height is 9 cm . Find its volume in terms of π and if its volume equals the volume of a sphere , find the radius length of the sphere.

[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Model 2

Answer the following questions :

1 Complete the following :

1 The additive inverse of the number : $-\sqrt{3}-\sqrt{5}$ is

2 $(\sqrt{8}+\sqrt{2})(\sqrt{8}-\sqrt{2}) = \dots\dots\dots$

3 The conjugate of the number $\frac{2\sqrt{5}-3\sqrt{2}}{\sqrt{2}}$ is

4 If the volume of a sphere is $\frac{9}{2}\pi \text{ cm}^3$, then its diameter length is cm.

5 $\{3, 4\} - \{3, 5\} = \dots\dots\dots$

2 Choose the correct answer from the given ones :

1 If the volume of a cube is 27 cm^3 , then the area of one of its faces is

(a) 3 cm^2

(b) 9 cm^2

(c) 36 cm^2

(d) 54 cm^2

2 If the mode of the values $4, 11, 8, 2x$ is 4 , then $x = \dots\dots\dots$

(a) 2

(b) 4

(c) 6

(d) 8

Algebra and Statistics

3 If the arithmetic mean of the values 18, 23, 29, $2k - 1$, k is 18, then $k = \dots\dots\dots$

- (a) 1 (b) 7 (c) 29 (d) 90

4 If the lower limit of a set is 4 and the upper limit is 8, then its centre is $\dots\dots\dots$

- (a) 2 (b) 4 (c) 6 (d) 8

5 A right circular cylinder the radius length of its base is r cm. and its height equals its diameter length, then its volume = $\dots\dots\dots \text{cm}^3$

- (a) πr^3 (b) πr^2 (c) $2\pi r^3$ (d) $2r^3$

6 The solution set of the equation : $x(x^2 - 1) = 0$, $x \in \mathbb{R}$ is $\dots\dots\dots$

- (a) $\{0\}$ (b) $\{1\}$ (c) $\{-1\}$ (d) $\{0, -1, 1\}$

3 [a] Reduce to the simplest form : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$

[b] Prove that : $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

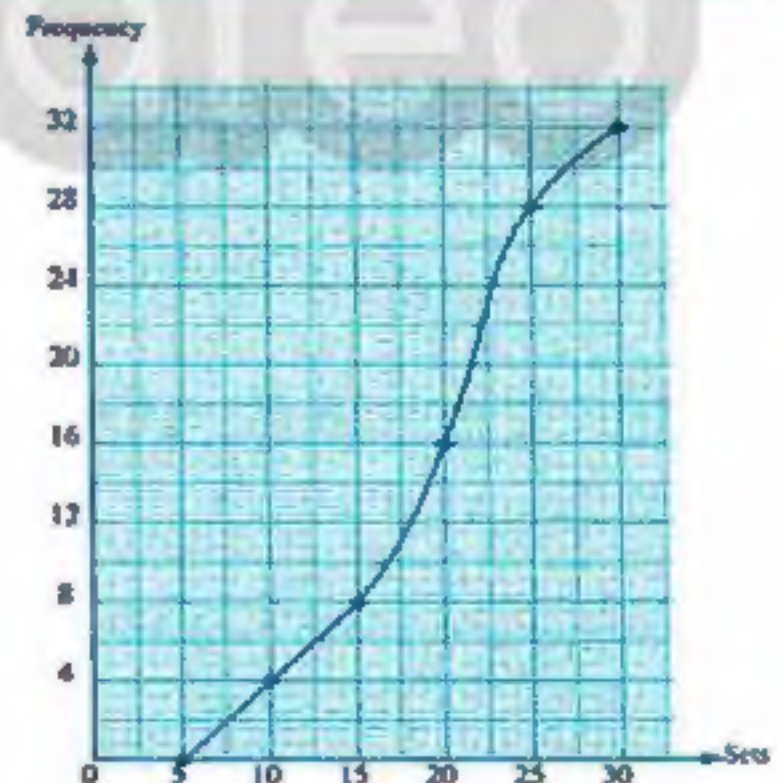
4 [a] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of solution on the number line.

[b] If $x = \sqrt{2 + \sqrt{3}}$, find the value of : $x^4 - 2x^2 + 1$

5 [a] The opposite graph represents the marks of 32 pupils in an exam.

Complete :

The median mark = $\dots\dots\dots$



[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

Model for the merge students

Answer the following questions :


1 Complete each of the following :

- 1 The conjugate of the number $\sqrt{3} + \sqrt{2}$ is
- 2 $\sqrt{18} + \sqrt{54} - 3\sqrt{2} = \dots\dots\dots$
- 3 The mode for the numbers : 3 , 5 , 3 , 4 , 3 is
- 4 The median of the values : 2 , 3 , 5 , 7 , 9 is
- 5 The solution set of the equation : $x^2 + 9 = 0$ in \mathbb{R} is

2 Choose the correct answer from those given :

- 1 The arithmetic mean for the values : 9 , 6 , 5 , 14 , 1 is
(a) 7 (b) 3 (c) 5 (d) 9
- 2 The simplest form of the expression : $(\sqrt{3} - \sqrt{2})(\sqrt{3} + \sqrt{2})$ is
(a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$
- 3 The additive inverse of the number $-\sqrt{5}$ is
(a) $\sqrt{5}$ (b) 5 (c) $\sqrt{2}$ (d) -5
- 4 $[3, 5] - \{3, 5\} = \dots\dots\dots$
(a) $]3, 5[$ (b) $[3, 5[$ (c) \emptyset (d) $]3, 5]$
- 5 A cube is of volume 64 cm^3 , then its edge length is cm.
(a) 4 (b) 8 (c) 16 (d) 64

3 Match from the column (A) to the suitable one from the column (B) :

(A)	(B)
1 The S.S. of the equation : $x^2 - 25 = 0$ in \mathbb{R} is	$[0, 2]$
2 $[-3, 2] \cap [0, 2] = \dots\dots\dots$	7
3 If the order of the median is fourth , then the number of values is	$\{5, -5\}$
4 $\sqrt{3}$ is a number.	
5 The S.S. of the inequality : $3 \leq x \leq 7$ on the number line is	irrational

Algebra and Statistics

4 Put (✓) for the correct statements and (✗) for the incorrect ones :

- 1 The arithmetic mean of a set of values = sum of values ÷ its number. ()
- 2 If $x = \sqrt{13} - \sqrt{7}$, $y = \sqrt{13} + \sqrt{7}$, then x , y are two conjugate numbers. ()
- 3 The irrational number $\sqrt{7}$ lies between 2 and 3 ()
- 4 $\sqrt{75} - 2\sqrt{27} = 7\sqrt{3}$ ()
- 5 The simplest form of the number $\frac{1}{\sqrt{5}}$ is $\frac{\sqrt{5}}{5}$ ()

5 [a] Complete : If the lower limit of a set is 4 and the upper limit is 8

, then its centre = $\frac{\dots + \dots}{2} = \dots$

[b] Complete the following table to obtain the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Sets	The centre of the set « x »	Frequency « f »	$x \times f$
5 -	10	7	$10 \times 7 = 70$
15 -	20	10	$20 \times 10 = \dots$
25 -	.....	.....	..... $\times 12 = \dots$
35 -	.....	.....	..... $\times 13 = \dots$
45 -	.....	.....	..... $\times 8 = \dots$
Total		50	.....

The arithmetic mean = $\frac{\sum (x \times f)}{\sum f} = \frac{\dots}{\dots} = \dots$

Some Schools Examinations



on Algebra and Statistics

1

Cairo Governorate

Near City Educ. Administration
St. Fetime Language School

Answer the following questions :

1 Choose the correct answer :

1 $[0, 5] \cup [3, 8[= \dots\dots\dots$

(a) $]3, 5]$

(b) $[3, 5]$

(c) $[0, 8]$

(d) $[0, 8[$

2 $\sqrt{12} - \sqrt{3} = \dots\dots\dots$

(a) 3

(b) $\sqrt{3}$

(c) $2\sqrt{3}$

(d) $3\sqrt{3}$

3 The S.S. in \mathbb{R} of the equation $x(x^2 - 1) = 0$ is $\dots\dots\dots$

(a) $\{0\}$

(b) $\{1\}$

(c) $\{-1\}$

(d) $\{0, -1, 1\}$

4 The arithmetic mean of the values 27, 8, 16, 24, 6, k is 14, then k = $\dots\dots\dots$

(a) 3

(b) 6

(c) 27

(d) 84

5 The additive inverse of the number $-\sqrt{5}$ is $\dots\dots\dots$

(a) $\sqrt{5}$

(b) 5

(c) $\sqrt{2}$

(d) -5

6 The radius length of a sphere is 6 cm., then its volume is $\dots\dots\dots$

(a) $6\pi \text{ cm}^3$

(b) $36\pi \text{ cm}^3$

(c) $72\pi \text{ cm}^3$

(d) $288\pi \text{ cm}^3$

2 Complete :

1 $[1, 5] \cap]-2, 3] = \dots\dots\dots$

2 The mode of the set of the values 3, 4, 7, 4, 2 is $\dots\dots\dots$ 3 The volume of the cuboid whose dimensions are $\sqrt{2}, \sqrt{3}, \sqrt{6}$ cm. is $\dots\dots\dots \text{ cm}^3$ 4 The S.S. in \mathbb{R} of $3 < 2x - 1 < 5$ as an interval is $\dots\dots\dots$ 5 The slope of any line parallel to x-axis is $\dots\dots\dots$ 3 [a] If $a = \sqrt{3} + \sqrt{2}$, $b = \sqrt{3} - \sqrt{2}$, find the value of : $a^2 - ab + b^2$ [b] Find the S.S. for each of the following inequalities in \mathbb{R} , in the form of an interval, then represent the S.S. on the number line :

1 $5x - 3 < 2x + 9$

2 $1 \leq 3 - 2x < 5$

4 [a] If $M = [2, \infty[$, $J =]-2, 3[$, find each of the following using the number line :

1 $M \cap J$

2 $M - J$

[b] Simplify : $\frac{\sqrt{3}}{\sqrt{5} - \sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5} + \sqrt{3}}$

Algebra and Statistics

5 [a] Reduce to the simplest form : $2\sqrt{18} + \sqrt{50} + \frac{1}{3}\sqrt{162}$

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

2

Cairo Governorate

El-Maadi Zone
Directing Mathematics

Answer the following questions :

1 Choose the correct answer :

- The multiplicative inverse of $\frac{\sqrt{3}}{12}$ is
(a) $4\sqrt{3}$ (b) 2 (c) $2\sqrt{3}$ (d) $6\sqrt{3}$
- The conjugate of the number $2 - \sqrt{3}$ is
(a) $\sqrt{3} - 2$ (b) $2 - \sqrt{3}$ (c) $\sqrt{2} - 3$ (d) $2 + \sqrt{3}$
- The volume of the cuboid whose dimensions are $\sqrt{8}$, $\sqrt{3}$, $\sqrt{6}$ is
(a) 144 (b) 12 (c) $\sqrt{120}$ (d) 20
- The median for the values 7, 8, 9, 6 and 5 is
(a) 7 (b) 8 (c) 9 (d) 10
- $4^3 + 4^3 + 4^3 + 4^3 =$
(a) 4^{20} (b) 4^4 (c) 4^{12} (d) 16^3
- If $(2k, k)$ satisfies the relation $2x + y = 15$, then $k =$
(a) 1 (b) 2 (c) 3 (d) 4

2 Complete :

- $[2, 7] -]2, 7[=$
- If the mode of the values 8, 11, 4, $2x$ is 4, then $x =$
- $\mathbb{R} \cap \mathbb{R}_- =$
- The slope of the straight line passing through the two points A (5, 3), B (2, 1) is
- The solution set in \mathbb{R} for $x^2 + 4 = 16$ is

3 [a] Put in the simplest form : $2\sqrt{8} + \sqrt{50} - \sqrt{32}$

[b] Find the solution set in \mathbb{R} for : $3x - 4 \leq 5$ and represent it on the number line.

4 [a] If $x = \frac{2}{\sqrt{7}-\sqrt{5}}$, $y = \sqrt{7}-\sqrt{5}$, find : $(x+y)^2$

[b] Represent graphically the relation : $y = 3x - 2$

5 [a] If the volume of a sphere equals $\frac{500}{3} \pi \text{ cm}^3$, find the length of its radius.

[b] The following table shows the frequency of marks of 50 students :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Find the mean of the marks of the students.

3

Cairo Governorate

El-Khalifa and El-Mokarem Zone
El-Helmia Exper. Lang. School



Answer the following questions :

1 Choose the correct answer :

1 The S.S. in \mathbb{R} for the equation : $x^3 + 8 = 0$ is

- (a) $\{4\}$ (b) $\{2\}$ (c) \emptyset (d) $\{-2\}$

2 If the mode of the values 3, 5, $x+1$, 5, 3, 1 is 5, then $x =$

- (a) 5 (b) 4 (c) 3 (d) 6

3 The cube whose volume is 8 cm^3 , the area of one of its faces is cm^2

- (a) 4 (b) 8 (c) 16 (d) 64

4 If $x < \sqrt{15} < x+1$, $x \in \mathbb{Z}$, then $x =$

- (a) 3 (b) 4 (c) 5 (d) \emptyset

5 $\sqrt{3} + \sqrt{3} =$

- (a) -3 (b) $\sqrt{12}$ (c) 12 (d) 3

6 Which of the following ordered pairs satisfies the relation $2x + y = 5$?

- (a) $(-1, 3)$ (b) $(1, 3)$ (c) $(3, 1)$ (d) $(2, 2)$

2 Complete :

1 $\sqrt[3]{\dots} = -\sqrt{9}$

2 If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k =$

3 If the order of the median of some values is fifth, then the number of these values is

4 $[-2, 5] \cap [3, 7] =$

5 If the lower limit of a set is 4 and the upper limit of the same set is 10, then the centre of this set is

Algebra and Statistics

- 3 [a] The volume of a sphere is $562.5 \pi \text{ cm}^3$, find its surface area.
 [b] If $x = \frac{4}{\sqrt{7} + \sqrt{3}}$, $y = \sqrt{7} + \sqrt{3}$, then find the numerical value of: $x^2 - 2xy + y^2$
- 4 [a] Find in \mathbb{R} the S.S. of: $-1 < 3x + 5 \leq 14$ and represent it on the number line.
 [b] Graph the relation: $2x + y = 1$
 [c] If $A =]-\infty, 3[$, $B = [-1, 5]$, find the following using the number line: 1 $A \cap B$ 2 $A - B$

- 5 [a] Find the slope of \overline{AB} where $A(-1, 3)$, $B(2, 5)$
 Is the point $C(8, 1) \in \overline{AB}$?
 [b] The following table shows the marks of 50 students in an examination:

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Find the arithmetic mean of this frequency distribution.

4

Giza Governorate

El-Haram Directorate
Al Maarefa Exp. Language School

Answer the following questions:

- 1 Complete the following:
- $\sqrt[3]{4} = \sqrt[3]{\dots}$
 - $] -3, 4[\cup \{-3\} = \dots$
 - The mode of the values 7, 3, 8, 2, 3, 4, 3, 7 is \dots
 - If $(3k, 2k)$ satisfies the relation $2x - y + 2 = 12$, then $k = \dots$
 - The slope of the straight line which passes through $A(2, -5)$, $B(3, -2)$ is \dots

- 2 Choose the correct answer:

- The multiplicative inverse of $\frac{\sqrt{2}}{4}$ is \dots
 (a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $4\sqrt{2}$ (d) 2
- $[2, 5] -]2, 5[= \dots$
 (a) $\{2, 5\}$ (b) $[2, 5[$ (c) $]2, 5]$ (d) \emptyset
- The mean of the values 4, 7, 3, 9, 2 is \dots
 (a) 2 (b) 3 (c) 5 (d) 7
- The S.S. of the equation $x^2 + 36 = 0$ in \mathbb{R} is \dots
 (a) $\{6\}$ (b) $\{-6\}$ (c) $\{6, -6\}$ (d) \emptyset

Final Examinations

5 If $5x = 35$, then $2x + 1 = \dots\dots\dots$

- (a) 9 (b) 15 (c) 8 (d) 7

6 The order of the median of 5, 2, 3, 9, 7, 1, 6 is $\dots\dots\dots$

- (a) 9 (b) 5 (c) 4 (d) 2

3 [a] If $X = [-2, 4]$, $Y =]1, 6]$

, find by using the number line : 1 \bar{X} 2 $X \cap Y$ 3 $X - Y$

[b] Find in \mathbb{R} the S.S. of the inequality : $2x + 1 < 7$

4 [a] Find in the simplest form : $2\sqrt{18} + \sqrt{50} - \sqrt{162}$

[b] If $x = 3 + \sqrt{5}$, $y = \frac{4}{3 + \sqrt{5}}$

, prove that : x, y are conjugate numbers and find the value of : $x^2 - 2xy + y^2$

5 [a] A lead cuboid in which its dimensions are 77 cm., 24 cm. and 21 cm. It was melted to form a sphere. Find the radius length of that sphere ($\pi = \frac{22}{7}$)

[b] Find the median by using the ascending cumulative frequency curve :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

5

Giza Governorate

Abo El-Nemras Educational Zone
Royal House Language Schools



Answer the following questions :

1 Choose the correct answer :

1 $(\sqrt{8} + \sqrt{2})^2 = \dots\dots\dots$

- (a) $\sqrt{10}$ (b) 10 (c) 18 (d) $\sqrt{18}$

2 The slope of any line // x -axis is $\dots\dots\dots$

- (a) 1 (b) undefined (c) -1 (d) zero

3 The multiplicative inverse of $(-2\frac{1}{3})$ is $\dots\dots\dots$

- (a) $\frac{1}{3}$ (b) $-\frac{7}{3}$ (c) $\frac{3}{7}$ (d) $-\frac{3}{7}$

4 The median of the values 34, 23, 25, 40, 22 is $\dots\dots\dots$

- (a) 22 (b) 23 (c) 24 (d) 25

5 $2a^2b \times \dots\dots\dots = 12a^3b$

- (a) $6ab$ (b) $6a$ (c) $6b$ (d) $6ab^2$

Algebra and Statistics

[8] The mode of the values 8, 5, $x+3$, 5, 8 is 8, then $x = \dots\dots\dots$

- (a) 5 (b) 8 (c) 3 (d) -5

2 Complete :

[1] The point (3,) satisfies $2x + y = 10$

[2] The mean of x , $2x$, $3x$ is

[3] If $2x = y$, then $x : y = \dots\dots\dots$

[4] If the centre of a set is 4 and the upper limit of this set is 8, then the lower limit of this set is

[5] $[2, 3] - \{2, 3\} = \dots\dots\dots$

[3] [a] If $x = \sqrt{7} - \sqrt{6}$, $y = \frac{1}{x}$, find the value of : $(x + y)^2$ (Show the steps).

[b] Find in \mathbb{R} the S.S. of : $-15 \leq 2x - 3 \leq 5$

[c] Simplify : $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

[4] [a] If $X =]-\infty, 5]$ and $Y =]1, 9[$, find by using the number line :

- [1] $X \cap Y$ [2] $X \cup Y$ [3] $X - Y$

[b] Find the slope of the straight line passing through the two points (2, 4), (4, 5)

[5] [a] Find the S.S. in \mathbb{R} : $125x^3 - 7 = 20$

[b] Find the mode of the following distribution :

The Set	2 -	6 -	10 -	14 -	18 -	22 -	26 -	Total
Frequency	3	5	8	10	7	5	2	40

6

Alexandria Governorate

East Educational Zone
Maths Supervision



Answer the following questions :

[Choose the correct answer from the given ones :

[1] The arithmetic mean for the values : 9, 6, 5, 14, 1 is

- (a) 7 (b) 3 (c) 5 (d) 9

[2] The additive inverse of the number $-\sqrt{5}$ is

- (a) $\sqrt{5}$ (b) 5 (c) $\sqrt{2}$ (d) -5

Final Examinations

3 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is

- (a) 2 (b) 4 (c) 6 (d) 8

4 The simplest form of the expression : $(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})$ is

- (a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$

5 If the radius length of a sphere is 6 cm. , then its volume is $\pi \text{ cm}^3$

- (a) 6 (b) 36 (c) 72 (d) 288

6 $(2\sqrt[3]{2})^3 = \dots\dots\dots$

- (a) 4 (b) 8 (c) 16 (d) 40

2 Complete the following :

1 If $3^x = 1$, then $x = \dots\dots\dots$

2 The median of the values 2 , 9 , 3 , 7 , 5 is

3 $]-2, 2] \cup \{-2, 0\} = \dots\dots\dots$

4 The mode for the numbers : 3 , 5 , 3 , 4 , 3 is

5 A cube whose volume is 8 cm^3 , then the sum of lengths of all its edges is

3 [a] Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$ (with steps).

[b] Represent graphically the relation : $y = 2 - x$

4 [a] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of solution on the number line.

[b] Reduce to the simplest form : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$ (with steps).

5 [a] If $(\sqrt{3})^x = (2\sqrt{2}-\sqrt{5})(2\sqrt{2}+\sqrt{5})$, then what is the value of x ?

[b] Find the arithmetic mean of the following frequency distribution :

The Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

7

Alexandria Governorate

El-Montazah Educational Zone
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 $\frac{3}{4} = \dots\dots\dots \%$

- (a) 70 (b) 50 (c) 75 (d) 25

الحاصل رياضيات (كراسة لثلاث) ٢/ إعدادي / ١ (٤ : ١)

41

Algebra and Statistics

[2] $[2, 7] -]2, 7[= \dots\dots\dots$

(a) $]2, 7]$

(b) $[2, 7[$

(c) $\{2, 7\}$

(d) $[2, \infty[$

[3] The median of the values 3, 7, 2, 9, 5, 11 is

(a) 9

(b) 6

(c) 8

(d) 11

[4] The remainder of subtracting $-5x$ from $3x$ equals

(a) $-2x$

(b) $8x$

(c) $2x$

(d) $8x^2$

[5] If $(a, 4)$ satisfies the relation $x - y = -1$, then the value of a is

(a) $\sqrt{3}$

(b) 5

(c) 27

(d) 3

[6] If the lower limit of a set is 4 and its centre is 9, then its upper limit is

(a) 36

(b) 5

(c) 13

(d) 14

[2] Complete :

[1] $\sqrt[3]{5} + \dots\dots\dots = \text{zero}$

[2] $\mathbb{R}^+ \cup \mathbb{R}^- = \dots\dots\dots$

[3] $\sqrt{a} + \sqrt{b}$ its conjugate is

and their sum is

[4] The mode of the set of values 4, 5, $k+1$, 3 is 3, then $k = \dots\dots\dots$

[5] The slope of the straight line parallel to x -axis equals

[3] [a] Simplify :

[1] $\sqrt{32} - \sqrt{50} + 4\sqrt{\frac{1}{2}}$

[2] $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54}$

[b] If $x = \sqrt{7} + \sqrt{5}$, $y = \frac{2}{x}$, find the value of $\frac{x+y}{xy}$ in the simplest form.

[4] [a] Find in \mathbb{R} the S.S. of the following inequality : $-1 \leq 3 - 2x < 5$,

then represent the interval of solution on the number line.

[b] Find the height of a right circular cylinder whose height is equal to its base radius length and its volume is $72\pi \text{ cm}^3$

[c] Graph the relation : $x + 2y = 3$

[5] [a] Find the slope of \overline{AB} , where $A(-1, 3)$ and $B(2, 5)$. Is the point $C(8, 1) \in \overline{AB}$?

[b] Find the mean of the following frequency data :

Sets	8 -	12 -	16 -	20 -	24 -	Total
Frequency	4	10	16	12	8	50

8 El-Kalyoubia Governorate

Directorate of Education
Inspection of Mathematics

Answer the following questions :

1 Choose the correct answer :

- 1 Let A (3 , 5) and B (5 , - 1) , then the slope of \overline{AB} =
 (a) $-\frac{1}{3}$ (b) - 3 (c) 3 (d) $\frac{1}{3}$
- 2 If the point (a , 1) satisfies the relation $x + y = 5$, then a =
 (a) 1 (b) - 4 (c) 4 (d) 5
- 3 The median of the values 34 , 23 , 25 , 40 , 22 , 4 is
 (a) 22 (b) 23 (c) 24 (d) 25
- 4 If the mode of the set of values 4 , 11 , 8 , 2 x is 4 , then x =
 (a) 2 (b) 4 (c) 6 (d) 8
- 5 The arithmetic mean for the values 9 , 6 , 5 , 14 , 1 is
 (a) 7 (b) 3 (c) 5 (d) 9
- 6 The mode for the values 3 , 5 , 3 , 4 , 3 is
 (a) 3 (b) 4 (c) 5 (d) 12

2 Complete :

- 1 25% = (in the form of $\frac{a}{b}$ in the simplest form)
- 2 The sum of the two square roots of the number $2\frac{1}{4}$ is
- 3 $|-0.75| = \dots\dots\dots$
- 4 $\sqrt[3]{-125} = \dots\dots\dots$
- 5 The multiplicative inverse for $(\sqrt{3} + \sqrt{2})$ in its simplest form is

3 [a] Find the value of x if : $x^3 - 1000 = 0$ [b] Find the circumference of the circle whose area is $3\pi \text{ cm}^2$ 4 [a] Find : $[2, \infty[\cap]-2, 3[$ (by using the number line)[b] Simplify the following to the simplest form : $(\sqrt{2} + 5)(3 + \sqrt{2})$ 5 [a] Graph the straight line that represents the relation : $x + 2y = 3$

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

Algebra and Statistics

9

El-Gharbia Governorate

Central Mathematics Supervision
Official Languages Schools

Answer the following questions :

1 Choose the correct answer :

- 1 If the radius length of a sphere is 6 cm. , then its volume is
(a) $6 \pi \text{ cm}^3$ (b) $36 \pi \text{ cm}^3$ (c) $72 \pi \text{ cm}^3$ (d) $288 \pi \text{ cm}^3$
- 2 If the point (a , 1) satisfies the relation $x + y = 5$, then a =
(a) 1 (b) -4 (c) 4 (d) 5
- 3 The median of the values 34 , 23 , 25 , 40 , 22 , 4 is
(a) 22 (b) 23 (c) 24 (d) 25
- 4 The solution set of the equation $x(x^2 - 1) = 0$, $x \in \mathbb{R}$ is
(a) {1} (b) {0} (c) {-1} (d) {0 , 1 , -1}
- 5 If the arithmetic mean of the values 18 , 21 , 29 , $2k + 1$, k is 18 , then k =
(a) 1 (b) 7 (c) 29 (d) 90
- 6 $\sqrt{3 \frac{3}{8}} = \frac{3}{2} \sqrt{\frac{\dots}{\dots}}$
(a) $\frac{3}{8}$ (b) $\frac{3}{2}$ (c) $\frac{27}{8}$ (d) $\frac{729}{64}$

2 Complete the following :

- 1 If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then $x =$
- 2 The multiplicative inverse of the number $(\sqrt{3} + \sqrt{2})$ is (in the simplest form).
- 3 $[3 , 4] - \{3 , 5\} =$
- 4 $\sqrt{64} - \sqrt[3]{64} =$
- 5 The slope of the straight line passing through (2 , 3) and (5 , -1) is

3 [a] If $x = \sqrt{7} + \sqrt{5}$, $y = \frac{2}{\sqrt{7} + \sqrt{5}}$

- 1 Prove that : x and y are two conjugate numbers.
- 2 Find : xy , $(x + y)^2$

[b] Find in the simplest form : $\sqrt{12} + \sqrt[3]{54} - \sqrt{3} - \sqrt[3]{16}$ 4 [a] Graph the relation : $2x + 3y = 6$, if the straight line representing this relation intersects the x -axis at A and the y -axis at B , find the area of the triangle OAB where O is the origin point.[b] Find the solution set in \mathbb{R} : $8x^3 + 7 = 8$

5 [a] Find the solution set for the inequality : $2x - 1 \geq 5$ in \mathbb{R}

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

10 El-Dakahlia Governorate

Talkha Educational Directorate
AMD.I School



Answer the following questions :

1 Choose the correct answer from the given ones :

1 If $x = 3 + \sqrt{3}$ and $y = 3 - \sqrt{3}$, then $x - y = \dots\dots\dots$

- (a) $6\sqrt{3}$ (b) -6 (c) $\sqrt{6}$ (d) $2\sqrt{3}$

2 If the order of the median of a set of values is the fifth, then the number of these values is $\dots\dots\dots$

- (a) 6 (b) 10 (c) 11 (d) 9

3 The result of $(1 + \sqrt{5})(1 - \sqrt{5}) = \dots\dots\dots$

- (a) 2 (b) -4 (c) $-2\sqrt{5}$ (d) $2\sqrt{5}$

4 If A (3, -2), B (0, 4), then the slope of $\overline{AB} = \dots\dots\dots$

- (a) -2 (b) 2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$

5 The mean of the values 2, 8, 6, 4 is $\dots\dots\dots$

- (a) 3 (b) 4 (c) 5 (d) 6

6 The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is $\dots\dots\dots$

- (a) $-\frac{\sqrt{3}}{6}$ (b) $6\sqrt{3}$ (c) $2\sqrt{3}$ (d) $-2\sqrt{3}$

2 Complete the following :

1 $[-3, 7] - \{-3, 7\} = \dots\dots\dots$

2 The S.S. of the equation $x^2 + 9 = 0$ in \mathbb{R} is $\dots\dots\dots$

3 If the mode of 14, 8, $x + 5$, 8 and 14 is 8, then $x = \dots\dots\dots$

4 The slope of the straight line perpendicular to y-axis is $\dots\dots\dots$

5 If the volume of a sphere is $\frac{9}{2} \pi \text{ cm}^3$, then its radius length is $\dots\dots\dots$

3 [a] Find in the simplest form : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $X = [-3, 4]$, $Y =]1, \infty[$, find each of the following using the number line :

- 1 $X \cap Y$ 2 $X - Y$

Algebra and Statistics

4 [a] Find in \mathbb{R} the S.S. of the inequality : $-7 \leq -3x + 1 < 13$ and represent it on the number line.

[b] If $x = \sqrt{6} + \sqrt{5}$, $y = \frac{1}{\sqrt{6} + \sqrt{5}}$:

1 Prove that : x, y are two conjugate numbers.

2 Find : the numerical value of $(x - y)^2$

5 [a] Graph the relation $y + 3x = 6$ and find the slope of the straight line.

[b] Find the arithmetic mean of the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	5	15	20	25	10	75

11

Ismailia Governorate

Directorate of Education
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 A (2, 5), B (3, 7), then the slope of $\overline{AB} = \dots\dots\dots$

(a) $\frac{1}{2}$ (b) 2 (c) -2 (d) 5

2 $]3, 5[\cup \{3, 5\} = \dots\dots\dots$

(a) $]3, 5[$ (b) $\{3, 5\}$ (c) $[3, 5]$ (d) $[3, 5[$

3 The median of 4, 11, 8, 16, 9, 14 is $\dots\dots\dots$

(a) 10 (b) 8 (c) 16 (d) 9

4 $\mathbb{Q} \cup \mathbb{Q} = \dots\dots\dots$

(a) \emptyset (b) \mathbb{R} (c) \mathbb{Z} (d) \mathbb{N}

5 The slope of X-axis is $\dots\dots\dots$

(a) negative. (b) positive. (c) undefined. (d) zero.

6 $\mathbb{Z}^+ \cap \mathbb{Z}^- = \dots\dots\dots$

(a) zero (b) \emptyset (c) \mathbb{Z} (d) \mathbb{N}

2 Complete :

1 The mean of 12, 13, 10, 11, 14 is $\dots\dots\dots$

2 The multiplicative inverse of $\sqrt{3} - \sqrt{2}$ is $\dots\dots\dots$

3 The mode of 5, 11, 6, 2, 11, 7 is $\dots\dots\dots$

4 If $\frac{x}{y} = 1$, then $x - y = \dots\dots\dots$

5 $\sqrt{5^2 - 4^2} = \dots\dots\dots$

3 [a] Find the S.S. in \mathbb{R} of : $8 \leq 3X + 2 \leq 17$ and represent it on the number line.

[b] Simplify : $\sqrt{72} + 3\sqrt{18} - 2\sqrt{\frac{1}{2}}$

4 [a] The volume of a cylinder is 1540 cm^3 , if its height is 10 cm., find its diameter length. ($\pi = \frac{22}{7}$)

[b] Graph the relation : $y = -3$

5 [a] If $X = [-1, \infty[$, $Y =]-4, 3]$, using the number line find :

1 $X \cap Y$

2 $X \cup Y$

3 X^c

[b] Find the mean of the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	8	12	14	9	7	50

12

Damietta Governorate

Damietta Inspection of mathematics
Official Language Schools

Answer the following questions :

1 Choose the correct answer from those given :

1 $\sqrt{25} - \sqrt[3]{-125} = \dots\dots\dots$

(a) zero

(b) 10

(c) 5

(d) ± 5

2 The multiplicative inverse of $\frac{\sqrt{2}}{6}$ is $\dots\dots\dots$

(a) $\sqrt{2}$

(b) $2\sqrt{2}$

(c) $3\sqrt{6}$

(d) $3\sqrt{2}$

3 If the lower limit of a set is 4 and the upper limit is 8, then its centre is $\dots\dots\dots$

(a) 8

(b) 6

(c) 4

(d) 2

4 The solution set of the equation $X^2 + 9 = 0$ in \mathbb{R} is $\dots\dots\dots$

(a) $\{3\}$

(b) $\{-3\}$

(c) \emptyset

(d) $\{-3, 3\}$

5 The arithmetic mean of the values $6 - k$, 12, 18 and $k + 4$ is $\dots\dots\dots$

(a) 9

(b) 10

(c) 15

(d) 40

6 If the volume of a cube is 27 cm^3 , then the perimeter of one of its faces is $\dots\dots\dots \text{ cm}$.

(a) 12

(b) 9

(c) 36

(d) 3

2 Complete each of the following :

1 The slope of the straight line passing through the points (1, -1) and (-3, 7) is $\dots\dots\dots$

2 If the ordered pair (k, 2k) satisfies the relation $X + y = 15$, then $k = \dots\dots\dots$

3 The point of intersection of the ascending and descending cumulative frequency curves determines $\dots\dots\dots$ on the set-axis.

Algebra and Statistics

4 If three times of a number is 60 , then $\frac{1}{5}$ of this number equals

5 If the mode of the values 5 , 9 , 5 , $x + 3$, 9 is 9 , then $x =$

3 [a] If $x = \sqrt{5} + \sqrt{2}$, $y = \frac{3}{x}$, then find the value of : $\frac{x+y}{xy}$ in its simplest form.

[b] Find in \mathbb{R} the solution set of the inequality : $-3 \leq 4x - 7 \leq 5$

[c] A right circular cylinder whose height is 8 cm. and its volume is $72\pi \text{ cm}^3$
Find the length of the radius of its base.

4 [a] Find in its simplest form : $\sqrt{50} + \sqrt[3]{54} - 10\sqrt{\frac{1}{2}} - \sqrt[3]{16}$

[b] If $X = [-1, 5[$ and $Y = [2, \infty[$, find using the number line :

1 $X \cup Y$

2 $X \cap Y$

3 $X - Y$

5 [a] Find three ordered pairs satisfying the relation $2x + y = 7$, then represent it graphically.

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

13 Kafr El-Sheikh Governorate

Directorate of Education
Math's Supervision



Answer the following questions :

1 Choose the correct answer :

1 $(\sqrt{5} + \sqrt{3})^2 (\sqrt{5} - \sqrt{3})^2 =$

(a) 2

(b) 3

(c) 4

(d) 8

2 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is

(a) 8

(b) 6

(c) 4

(d) 2

3 $2 \in$

(a) $]-1, \infty[$

(b) $]2, 5[$

(c) $]-\infty, 1[$

(d) $\{22\}$

4 If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k =$

(a) 7

(b) 4

(c) 3

(d) 2

5 If the slope of the straight line $ax + by + 1 = 0$ is undefined , then $=$

(a) $a = b$

(b) $a = \text{zero}$

(c) $b = \text{zero}$

(d) $a = -b$

6 The intersection point of the ascending and descending cumulative frequency curves determines the on the sets axis.

(a) mode

(b) median

(c) mean

(d) centre

2 Complete :

- 1 The slope of the straight line passing through the two points (2, 6) and (-1, 3) equals
- 2 If the mode of the values 4, 11, 8, 2, x is 4, then $x =$
- 3 If the mean of the values 9, 6, 5, 14 is k , then $k =$
- 4 If the volume of a sphere $= 36\pi \text{ cm}^3$, then its diameter length = cm.
- 5 The degree of the algebraic term $3x^2y^2$ is

- 3 [a] Find the volume of the right circular cylinder whose diameter length of its base is 10 cm. and its height is 7 cm. ($\pi = \frac{22}{7}$)

[b] If $X =]-\infty, 5]$, $Y =]1, 7]$

, find by using the number line : 1 $X \cap Y$ 2 $X \cup Y$ 3 $Y - X$

[c] Find the S.S. of the equation : $8x^3 + 7 = 8$ in \mathbb{R}

- 4 [a] Represent graphically the relation $y = x + 2$ and if $(-4, a)$ satisfies the relation, find the value of a

[b] Simplify : $\sqrt{18} + \sqrt{50} - 2\sqrt{8}$

[c] Find in \mathbb{R} the S.S. of the inequality : $-8 < 3x + 1 \leq 4$

- 5 [a] If $x = \sqrt{3} + \sqrt{2}$, $y = \frac{1}{\sqrt{3} + \sqrt{2}}$, then find the value of : $\frac{x+y}{xy}$

[b] From the following frequency table with equal sets :

The Set	10 -	20 -	30 -	40 -	50 -	60 - 70	Total
Frequency	12	15	25	27	$k + 4$	4	100

1 Find the value of k

2 Calculate the median.

14 Souhag Governorate

Maths Supervision



Answer the following questions :

- Choose the correct answer from those given :

- 1 If the mode of the values 5, 8, $6 + x$, 9 is 9, then $x =$
 (a) 5 (b) 6 (c) 3 (d) 8
- 2 The volume of a cube is 27 cm^3 , then the area of one of its faces is
 (a) 3 cm^2 (b) 9 cm^2 (c) 36 cm^2 (d) 54 cm^2

Algebra and Statistics

- 3 The slope of any line parallel to x -axis equals
- (a) 1 (b) undefined (c) -1 (d) zero
- 4 The multiplicative inverse of $\frac{2\sqrt{3}}{6}$ is
- (a) $\sqrt{2}$ (b) 6 (c) $\sqrt{3}$ (d) zero
- 5 $\mathbb{Q} \cup \mathbb{Q} = \dots\dots\dots$
- (a) \emptyset (b) 0 (c) \mathbb{R} (d) \mathbb{Z}
- 6 If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k = \dots\dots\dots$
- (a) 5 (b) 6 (c) 2 (d) 7

2 Complete the following :

- 1 $[1, 5] - \{1, 5\} = \dots\dots\dots$
- 2 The S.S. of the equation : $x(x^2 - 1) = 0$ in \mathbb{R} is
- 3 $(2x^2y) \times (\dots\dots\dots) = 12x^3y$
- 4 The arithmetic mean of the values 8, 6, 3, 7, 1 is
- 5 $\sqrt[3]{64} + \sqrt{16} = \dots\dots\dots$

3 [a] Use the following table to find the relation between x, y :

x	-1	0	1	2
y	-1	1	3	5

- [b] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of the S.S. on the number line.

4 [a] If $x = \sqrt{3} + \sqrt{2}$, $y = \frac{1}{\sqrt{3} + \sqrt{2}}$, then find the value of : $\frac{x+y}{xy}$

- [b] If $X =]-2, 1]$, $Y = [0, 3[$, use the number line to find :

- 1 $X \cap Y$ 2 $X \cup Y$ 3 $X - Y$

5 [a] Simplify : 1 $\sqrt{50} + \sqrt{18} - \sqrt{32}$ 2 $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

- [b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

15

Luxor Governorate

Luxor Directorate
El-Salem Private Language School

Answer the following questions :

1 Choose the correct answer :

- 1 The smallest prime number is
 (a) 0 (b) 1 (c) 2 (d) 3
- 2 If the mode of the set of values 4 , 11 , 8 , 2 x is 4 , then x =
 (a) 2 (b) 4 (c) 6 (d) 8
- 3 If (2 , 5) satisfies the relation $3x + y = c$, then c =
 (a) 1 (b) -1 (c) 11 (d) -11
- 4 The solution set of the equation $x^2 + 9 = 0$ in \mathbb{R} is
 (a) \emptyset (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3, -3\}$
- 5 The lower limit of a set is 4 and the upper limit is 8 , then its centre is
 (a) 2 (b) 4 (c) 6 (d) 8
- 6 $4.274 \approx$ (to the nearest $\frac{1}{10}$)
 (a) 4 (b) 4.2 (c) 4.3 (d) 4.27

2 Complete :

- 1 $[2, 7] - \{2, 7\} =$
- 2 The coefficient of the algebraic term $5a^3b^2$ is
- 3 The mean of 3 , 5 , 7 , 4 , 1 is
- 4 The slope of any line parallel to y-axis is
- 5 The median of the values 3 , 7 , 6 , 9 , 2 is

3 [a] Simplify to the simplest form : $\sqrt{27} - \sqrt{12} + \sqrt{300}$ [b] If $a = \sqrt{5} + \sqrt{3}$, $b = \sqrt{5} - \sqrt{3}$, find : $a^2 + 2ab + b^2$ 4 [a] Find the S.S. in \mathbb{R} of the inequality : $2x + 1 \leq 7$, then represent it on the number line.[b] Find the volume of the sphere whose diameter length is 4.2 cm. ($\pi = \frac{22}{7}$)5 [a] Let A (2 , -1) , B (10 , 3) and C (2 , 3). Find the slope of each of \overline{AB} and \overline{BC}

[b] Find the arithmetic mean of the following distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

Final
Examinations of

Algebra and
Statistics
2019



هذا العمل خاص بموقع ذاكرولي التعليمي ولا يسمح بتداوله على مواقع أخرى

Some Schools Examinations on Algebra and Statistics

1 Cairo Governorate

Al-Nozha Administration
Al Farouk Islamic Language School

Answer the following questions :

1 Choose the correct answer from the given ones :

(1) The irrational number lies between 3 and 4 is

(a) 3.5

(b) $3\frac{1}{8}$ (c) $\sqrt{13}$ (d) $\sqrt{20}$ (2) $]-2, 1] \cap \{-2, 0, 1\} = \dots\dots\dots$ (a) $\{-2, 0, 1\}$ (b) $\{1\}$ (c) $\{0, 1\}$ (d) $[-2, 1]$ (3) If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $(xy, x + y) = \dots\dots\dots$ (a) $(5, 2\sqrt{3})$ (b) $(5, 9)$ (c) $(1, 2\sqrt{3})$ (d) $(-1, 2\sqrt{3})$ (4) The line represented the relation : $3x + 8y = 24$ intersects the y-axis at the point(a) $(0, 8)$ (b) $(8, 0)$ (c) $(0, 3)$ (d) $(3, 0)$ (5) If the arithmetic mean of the set of the values $m, m + 5, m + 4, m + 3$ is 9, then $m = \dots\dots\dots$

(a) 2

(b) 6

(c) 9

(d) 10

2 Complete each of the following :

(1) The slope of a straight line which passes through $(-3, 1)$ and $(-2, 5)$ is(2) If the mode of the set of the values $17, 8, k + 5, 8, 17$ is 8, then $k = \dots\dots\dots$ (3) The multiplicative inverse of $\frac{\sqrt{13} - \sqrt{10}}{3}$ is (In the simplest form)(4) The radius length of a sphere whose volume is $\frac{9}{2}\pi \text{ cm}^3$ is cm.

(5) If the order of the median of the set of values is fifth, then the number of these values equals

3 [a] If $A =]-1, 3]$ and $B = [0, 5[$, then find :(1) $A \cap B$ (2) $B - A$ (3) $\mathbb{R}_+ \cap B$ [b] Simplify : $2\sqrt{27} + \frac{1}{3}\sqrt[3]{54} - \sqrt{75} + \sqrt[3]{16}$ 4 [a] Find in \mathbb{R} the S.S. of each of the following :(1) $\frac{(2x-1)^3}{3} = 9$ (2) $-1 < 3 - 2x \leq 5$ [b] If $x = 2\sqrt{3} - \sqrt{2}$ and $y = \sqrt{12} + \sqrt{2}$ Find the value of : $\frac{x+y}{xy+2}$

5 [a] If $(a, 3)$ and $(3, b)$ satisfies the relation $2x - y = 1$

(1) Find the value of a and b

(2) Find the slope of the straight line which represented the relation : $2x - y = 1$

[b] From the following frequency table :

Sets	10 -	20 -	30 -	40 -	50 -	60 -	Total
Frequency	10	17	20	32	$k + 2$	4	100

(1) Find the value of k

(2) Graph the frequency histogram , then find the mode.

2. Cairo Governorate

Western Cairo Educational Zone
Mathematics Inspection



Answer the following questions :

1 Choose the correct answer :


(1) If the volume of a cube is 64 cm^3 , then its edge length is

(a) 32 cm.

(b) 16 cm.

(c) 8 cm.

(d) 4 cm.

(2) The figure  represents the solution of the inequality in \mathbb{R}

(a) $x > -3$

(b) $x \geq -3$

(c) $x < -3$

(d) $x \leq -3$

(3) $\sqrt{3}(\sqrt{11} + \sqrt{3}) = \dots\dots\dots$

(a) $3\sqrt{11} + 2$

(b) $\sqrt{33} + 3$

(c) $11\sqrt{3} + 2$

(d) $2\sqrt{11} + 3$

(4) $(3, 2)$ does not satisfy the relation

(a) $y + x = 5$

(b) $3y - x = 3$

(c) $y + x = 7$

(d) $x - y = 1$

(5) The arithmetic mean of the values : 5 , 12 , 17 , 6 is

(a) 10

(b) 12

(c) 4

(d) 17

2 Complete each of the following :

(1) $\sqrt[3]{-64} + \sqrt{16} = \dots\dots\dots$

(2) If the mode of the set of the values : 15 , 9 , $x + 1$, 9 and 15 is 9 , then $x = \dots\dots\dots$

(3) The multiplicative inverse of the number $\frac{3}{\sqrt{3}}$ is $\frac{\dots\dots}{\sqrt{3}}$

(4) If the volume of a sphere = $\frac{9}{16} \pi \text{ cm}^3$, then its radius length = cm.

(5) If the order of the median of the set of values is fourth , then the number of these values is

Algebra and Statistics

3 [a] If $x = \sqrt{3} - 2$ and $y = \sqrt{3} + 2$, find the value of : $\left(\frac{x-y}{x+y}\right)^2$

[b] Simplify the following to the simplest form : $\sqrt{98} - \sqrt{128} - \sqrt{18} + 4\sqrt{2}$

4 [a] If $X =]-\infty, 2[$ and $Y = [-1, 5]$, find using the number line :

(1) $X \cap Y$

(2) $X - Y$

[b] Find the slope of the straight line passing through the two points : A (1, 3) and B (2, 3)

5 [a] Find the solution set for the following equation in \mathbb{R} , then represent the solution on the number line : $-8 \leq 3x + 1 \leq 4$

[b] Find the mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	3	10	12	10	5	40

3 Cairo Governorate

New Cairo Educational Zone
Akhmaton Egyptian College



Answer the following questions :

1 Complete the following :

(1) The S.S. of the equation : $x^3 - 27 = 0$ in \mathbb{R} is

(2) $[1, 5] - \{1, 5\} = \dots\dots\dots$

(3) The slope of the straight line which passes through the two points (2, -2) and (4, 2) is

(4) A cube whose volume is 8 cm^3 , the length of its edge = cm.

(5) The arithmetic mean of 10, 6, 5, 14, 15 is

2 Choose the correct answer :

(1) If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $xy = \dots\dots\dots$

(a) 1

(b) -1

(c) -4

(d) 3

(2) $]-1, 3[\cap [-3, -1] = \dots\dots\dots$

(a) \emptyset

(b) $\{-3\}$

(c) $\{-1\}$

(d) $\{3\}$

(3) If the lower limit of a set is 6 and the upper limit is 10, then its centre is

(a) 4

(b) 6

(c) 10

(d) 8

(4) The multiplicative inverse of $\frac{\sqrt{5}}{10}$ is

- (a) $\sqrt{10}$ (b) $\sqrt{5}$ (c) $2\sqrt{5}$ (d) $-2\sqrt{5}$

(5) The S.S. of $x + 2 \geq 1$ in \mathbb{R} is

- (a) $[-1, \infty[$ (b) $] -1, \infty[$ (c) $[1, 2]$ (d) $[1, 2[$

[3] [a] Simplify : $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54} + \sqrt[3]{-2}$

[b] Find the S.S. of : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of the solution set on the number line.

[4] [a] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, then find the value of : $\frac{x+y}{x-y-1}$

[b] If $X = [-2, 1]$ and $Y = [0, \infty[$ Find :

- (1) $X \cap Y$ (2) $X \cup Y$ (3) $Y - X$

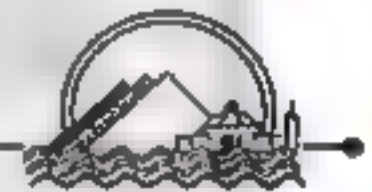
[5] [a] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

[b] Represent graphically the relation : $2y - x = 2$

4 Giza Governorate

Al-Agoza Directorate
Supervision of math.



Answer the following questions :

[1] Complete :

(1) The S.S. of the equation $x^2 + 9 = 0$ in \mathbb{R} is

(2) $\sqrt[3]{16} = \sqrt[3]{\dots\dots\dots}$

(3) The multiplicative inverse of the number $2\sqrt{3}$ is

(4) $\{8, 9, 10\} \cap]8, 10[= \dots\dots\dots$

(5) The length of the edge of a cube of volume $15 \frac{5}{8} \text{ cm}^3$ is

[2] Choose the correct answer :

(1) The mean of the set of numbers : 5, 12, 17, 6 is

- (a) 40 (b) 20 (c) 5 (d) 10

(2) The S.S. of the equation : $x^2 - 1 = 8$ in \mathbb{R} is

- (a) \emptyset (b) $\{3\}$ (c) $\{-3\}$ (d) $\{-3, 3\}$

Algebra and Statistics

(3) The conjugate of $\frac{1}{\sqrt{3}-\sqrt{2}}$ is

- (a) $\sqrt{3}-\sqrt{2}$ (b) $3-\sqrt{2}$ (c) $3+\sqrt{2}$ (d) $\sqrt{3}+\sqrt{2}$

(4) The value of b that makes $(-2, 3)$ satisfies the relation : $3x + by = 3$ is

- (a) 3 (b) 2 (c) 1 (d) -3

(5) If the mode of the values : $5, x+3, 9, 4$ is 9 , then $x =$

- (a) 5 (b) 4 (c) 6 (d) 3

[3] [a] Represent graphically the relation : $y = 2x - 3$

[b] If $X =]-\infty, 2]$ and $Y = [-1, 8]$, using the number line , find :

- (1) $X \cup Y$ (2) $X - Y$ (3) $X \cap Y$

[4] [a] Simplify :

- (1) $\sqrt{50} + \sqrt{18} - \sqrt{32}$ (2) $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

[b] Find the slope of the straight line passing through the two points : A (5 , -3) and B (6 , 2)

[5] [a] Write two ordered pairs satisfying the relation : $y = x + 1$

[b] Find the arithmetic mean of the following frequency distributive :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	10	20	25	30	15	100

5 Giza Governorate

El-Haram Educational Zone
Pyramide Language School



Answer the following questions :

[1] Complete the following :

- (1) $\sqrt[3]{64} = \sqrt{\dots}$
 (2) If $a = \sqrt{5} - 2$, $b = \sqrt{5} + 2$, then $a^2 b^2 = \dots$
 (3) The S.S. of the equation $x^2 + 5 = 0$ in \mathbb{R} is
 (4) $[-1, 5] \cap [3, 7] = \dots$
 (5) If $a^2 + b^2 = 25$ and $a b = 5$, then $\frac{a}{b} + \frac{b}{a} = \dots$

2 Choose the correct answer :

(1) $(\sqrt{2} + \sqrt{8})^2 = \dots\dots\dots$

(a) 18

(b) $\sqrt{10}$

(c) 4

(d) 10

(2) The sum of the real numbers of the interval $[-150, 150]$ is $\dots\dots\dots$

(a) 300

(b) -300

(c) zero

(d) 150

(3) The volume of a cuboid whose dimensions $\sqrt{2}$ cm. , $\sqrt{3}$ cm. , $\sqrt{6}$ cm. is $\dots\dots\dots$

(a) 6 cm^3

(b) 36 cm^3

(c) $6\sqrt{6} \text{ cm}^3$

(d) $18\sqrt{2} \text{ cm}^3$

(4) $\sqrt{(10)^2 - (6)^2} = \dots\dots\dots$

(a) 4

(b) 8

(c) ± 4

(d) ± 8

(5) $\sqrt[3]{3\sqrt{3}} = \dots\dots\dots$

(a) 3

(b) $\frac{1}{2}$

(c) $\sqrt[3]{3}$

(d) $\sqrt{3}$

3 [a] Simplify the following :

(1) $6\sqrt{\frac{5}{2}} + 20\sqrt{\frac{2}{5}}$

(2) $4\sqrt[3]{\frac{1}{2}} + 3\sqrt[3]{32} - \sqrt[3]{4}$

[b] Find the S.S. in $\mathbb{R} : (x-1)^2 = 4$

4 [a] If $(3, 2)$ satisfies the relation $x + 2y = m$, then find the value of m

[b] Find the slope of the straight line passes through the two points $(3, 5)$ and $(4, 7)$

[c] Represent graphically : $y = x + 2$

5 [a] Find the median of : 28 , 25 , 24 , 26 , 27

[b] Find the arithmetic mean of the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Sum
Frequency	4	6	8	7	5	30

6 Alexandria Governorate

Middle Educational Zone
Math's Supervision



Answer the following questions :

1 Complete each of the following :

(1) If $3^x = 1$, then $x = \dots\dots\dots$

(2) The S.S. of the equation : $x(x^3 - 1) = 0$ in \mathbb{R} is $\dots\dots\dots$

Algebra and Statistics

(3) $]5, 7[\cup \{5, 7\} = \dots\dots\dots$

(4) If the arithmetic mean of the values : 9 , 6 , 5 , 14 , k is 7 , then k =

(5) If the slope of the straight line : $kx + 2y = 5$ is zero , then k =**2] Choose the correct answer from the given ones :**

(1) $(2\sqrt[3]{2})^3 = \dots\dots\dots$

- (a) 4 (b) 8 (c) 16 (d) 40

(2) If the volume of a cube is 27 cm^3 , then the area of its face is cm^2

- (a) 3 (b) 9 (c) 36 (d) 54

(3) If the order of the median of a set of values is the fourth , then the number of values is

- (a) 3 (b) 5 (c) 7 (d) 9

(4) If the mode of the set of values : 5 , 9 , 5 , $x - 2$, 9 is 9 , then $x = \dots\dots\dots$

- (a) 5 (b) 57 (c) 9 (d) 11

(5) If $(-1, 5)$ satisfies the relation : $3x + ky = 7$, then k =

- (a) 2 (b) -2 (c) 1 (d) 10

3] [a] Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, find the value of : $\frac{x+y}{x-y-1}$

4] [a] Write in the form of an interval the S.S. of the inequality : $x + 4 \geq 2x - 3 > x + 1$ **[b] Represent graphically the relation : $y = 2 - x$** **5] [a] The volume of a sphere is $\frac{99000}{7} \text{ cm}^3$. Calculate its radius length.**

$(\pi = \frac{22}{7})$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

7 Alexandria GovernorateEl-Montazah Educational Zone
Math's Supervision**Answer the following questions :****1] Complete each of the following :**(1) The multiplicative inverse for $-\frac{\sqrt{2}}{6}$ is(2) If $5x - 3y = 0$, then $x : y = \dots\dots\dots$

- (3) The slope of any line parallel to X-axis =
- (4) $\sqrt{5} + \sqrt{2}$ its conjugate is and their product is
- (5) If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k = \dots\dots\dots$

2] Choose the correct answer :

- (1) If $|a| = 5$, then $a = \dots\dots\dots$
- (a) 5 (b) -5 (c) ± 5 (d) $\sqrt{5}$
- (2) The order of the median of the set of values : 4, 5, 6, 7, 8 is
- (a) third. (b) fourth. (c) fifth. (d) sixth.
- (3) The S.S. of the inequality $-2x \geq 6$ in \mathbb{R} is
- (a) $]-\infty, -3[$ (b) $]-\infty, -3]$ (c) $[-3, \infty[$ (d) $[-3, \infty[$
- (4) $\{8, 9, 10\} -]8, 10[= \dots\dots\dots$
- (a) \emptyset (b) $\{9\}$ (c) \mathbb{N} (d) $\{8, 10\}$
- (5) The mode of the set of values : 5, 9, 5, $x-2$, 9 is 9, then $x = \dots\dots\dots$
- (a) 5 (b) 57 (c) 9 (d) 11

3] [a] Find in the simplest form : $2\sqrt{18} + \sqrt{50} + \frac{1}{3}\sqrt{162}$

[b] If $a - b = 2\sqrt{7}$, then find the value of : $a(a - b)^2 - b(a - b)^2$

[c] Find the slope of line \overline{AB} , where $A(-1, 3)$ and $B(2, 5)$ Is the point $C(8, 1) \in \overline{AB}$?

4] [a] Find the S.S. of the inequality : $-1 < 2x - 3 \leq 5$ in \mathbb{R} and represent the interval of solution on the number line.

[b] Find the lateral area for right circular cylinder of volume 924 cm^3

, and its height 6 cm.

$$\left(\pi = \frac{22}{7}\right)$$

5] [a] If $(\sqrt{3})^x = (2\sqrt{2} - \sqrt{5})(2\sqrt{2} + \sqrt{5})$, then what is the value of x ?

[b] By using the following distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	3	10	$k - 2$	10	5	40

- (1) Find the value of k
- (2) Find the arithmetic mean.

8 El-Kalyoubia Governorate

Mathematics Inspection



Answer the following questions :

1 Choose the correct answer :

(1) $\mathbb{Q} \cap \mathbb{Q} = \dots\dots\dots$

- (a) \mathbb{R} (b) \mathbb{R}_+ (c) \mathbb{R}_- (d) \emptyset

(2) The S.S. of the equation : $x^3 + 27 = 0$ in \mathbb{R} is

- (a) $\{3\}$ (b) $\{-3\}$ (c) \emptyset (d) $\{3\sqrt{3}, -3\sqrt{3}\}$

(3) $\{x : x \in \mathbb{R}, x < 1\} = \dots\dots\dots$

- (a) $\{0, -1, -2\}$ (b) $]-\infty, 1]$ (c) $]-\infty, 1[$ (d) $]1, \infty[$

(4) The mode of values : 3, 5, 3, 6, 5, 3, 7 is

- (a) 3 (b) 5 (c) 7 (d) 6

(5) The arithmetic mean of the values : 6, 19, 32, 25, 8 is

- (a) 90 (b) 32 (c) 18 (d) 6

2 Complete the following :

(1) If $3^x = 1$, then $x = \dots\dots\dots$ (2) The conjugate of the number $\frac{4}{\sqrt{7}-\sqrt{3}}$ is(3) The total area of a cube of edge length 4 cm. is cm^2 (4) If the point (6, a) lies on the straight line whose equation is $x + y = 3$, then $a = \dots\dots\dots$

(5) The median of the set of the values : 2, 9, 3, 7, 5 is

3 [a] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$ Find the value of : $\frac{x+y}{x-y+1}$ [b] If $X = [-1, 2]$ and $Y = [1, \infty[$ Find :

- (1) $X \cap Y$ (2) $X \cup Y$

4 [a] Find the S.S. of the inequality : $7 \geq 2x + 1 > 3$ [b] The radius length of the base of a right cylinder is $4\sqrt{2}$ cm. and its height is 9 cm. Find its volume in terms of π .

5 [a] Find the slope of \overrightarrow{AB} where A (2, -1) and B (-1, 3), then draw \overrightarrow{AB} on 2-dimensions coordinate.

[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	3	4	7	4	2	20

9 El-Sharkia Governorate

Directorate of Education
Dept. of Governmental L. Schools



Answer the following questions :

1 Complete each of the following :

- (1) $[2, 7[\cup \{2, 7\} = \dots\dots\dots$
- (2) If the volume of a cube is 64 cm^3 , then its lateral area = $\dots\dots\dots \text{ cm}^2$
- (3) If $(k, 4)$ satisfies the relation $x + 2y = 15$, then $k = \dots\dots\dots$
- (4) If $a = \sqrt{5} + 1$ and $b = \sqrt{5} - 1$, then $a - b = \dots\dots\dots$
- (5) The mean of the numbers 3, 4, 6, 7 is $\dots\dots\dots$

2 Choose the correct answer :

- (1) The additive inverse of $\sqrt{5} - \sqrt{3}$ is $\dots\dots\dots$
 - (a) $\sqrt{5} - \sqrt{3}$
 - (b) $\sqrt{3} + \sqrt{5}$
 - (c) $-\sqrt{5} - \sqrt{3}$
 - (d) $\sqrt{3} - \sqrt{5}$
- (2) The S.S. of the equation $x^2 + 16 = 0$ in \mathbb{R} is $\dots\dots\dots$
 - (a) $\{4\}$
 - (b) \emptyset
 - (c) $\{4, -4\}$
 - (d) $\{-4\}$
- (3) $(\sqrt{5} + \sqrt{3})^2 (\sqrt{5} - \sqrt{3})^2 = \dots\dots\dots$
 - (a) 4
 - (b) 2
 - (c) 8
 - (d) 3
- (4) The slope of any line parallel to X-axis equals $\dots\dots\dots$
 - (a) 1
 - (b) undefined
 - (c) -1
 - (d) zero
- (5) If $5x = 35$, then $2x + 1 = \dots\dots\dots$
 - (a) 7
 - (b) 15
 - (c) 8
 - (d) 71

3 [a] Find the value of : $\sqrt{50} - \sqrt{8} + 2\sqrt{\frac{1}{2}} - \sqrt{18}$

[b] If $x = \frac{4}{3 + \sqrt{5}}$ and $y = 3 + \sqrt{5}$ Prove that : x and y are conjugate numbers
, then find the value of : $(x + y)^2$

Algebra and Statistics

- 4 [a] If $A =] - 2, 6]$ and $B = [4, \infty[$, use the number line to find :

(1) $A \cup B$

(2) $A \cap B$

- [b] If the volume of a sphere is $36 \pi \text{ cm}^3$. Find the length of its radius, then calculate its total area ($\pi = 3.14$)

- 5 [a] Graph the linear relation : $y = 2x - 1$

- [b] Solve in \mathbb{R} the inequality : $x + 2 \leq 3x + 2 < x + 16$

- [c] Find the mean of the following data :

Sets	20 -	30 -	40 -	50 -	60 -	70 -	Total
Frequency	10	15	22	25	20	8	100

10 El-Dakahlia Governorate

Math's Supervision (E.L.S)



Answer the following questions :

- 1 Complete the following :

- (1) $[-5, 9] - \{-5, 9\} = \dots\dots\dots$
 (2) The S.S. of the equation : $x^3 + 8 = 0$ in \mathbb{R} is $\dots\dots\dots$
 (3) If the mode of 14, 9, $x + 5$, 9 and 14 is 9, then $x = \dots\dots\dots$
 (4) The slope of the straight line parallel to x -axis is $\dots\dots\dots$
 (5) If the volume of the sphere is $\frac{1}{6} \pi \text{ cm}^3$, then its radius length = $\dots\dots\dots$

- 2 Choose the correct answer :

- (1) If $x = 5 + \sqrt{3}$ and $y = 5 - \sqrt{3}$, then $x - y = \dots\dots\dots$
 (a) 10 (b) -10 (c) $\sqrt{6}$ (d) $2\sqrt{3}$
 (2) If the order of the median of the set of values is the fourth, then the number of values is $\dots\dots\dots$
 (a) 8 (b) 10 (c) 7 (d) 9
 (3) $(1 + \sqrt{7})(1 - \sqrt{7}) = \dots\dots\dots$
 (a) 2 (b) -4 (c) $-2\sqrt{7}$ (d) -6
 (4) If A (2, -2) and B (1, 4), then the slope of $\overline{AB} = \dots\dots\dots$
 (a) -2 (b) 2 (c) -6 (d) $-\frac{1}{2}$
 (5) The mean of the values 3, 7, 8, 2 is $\dots\dots\dots$
 (a) 2 (b) 4 (c) 5 (d) 6

3 [a] Simplify to the simplest form : $2\sqrt{18} + \sqrt[3]{54} - 12\sqrt{\frac{1}{2}} - 5\sqrt[3]{16}$

[b] If $X = [-2, 5]$ and $Y =]2, \infty[$

Find : (1) $X \cap Y$

(2) $Y - X$

4 [a] Find in \mathbb{R} the S.S. of the inequality : $-9 \leq -3x + 2 < 17$

[b] If $x = \sqrt{7} + \sqrt{6}$ and $y = \frac{1}{\sqrt{7} + \sqrt{6}}$

(1) Prove that : x and y are conjugate. (2) Find : the numerical value of $x^2 - y^2$

5 [a] Graph : $y + 2x = 4$ Does the point $(-1, 6)$ belong to the straight line ?

[b] Using the following distribution , find the arithmetic mean :

Sets	10 -	20 -	30 -	40 -	50 -
Frequency	6	14	21	24	10

11 Ismailia Governorate

Directorate of Education
El-Manar Language School



Answer the following questions :

1 Complete the following :

(1) $[-1, 5] -]-1, 5[= \dots\dots\dots$

(2) If $(k, 5)$ satisfies the relation : $2y + 2x = 8$, then $k = \dots\dots\dots$

(3) The S.S. of the equation $x^3 + 125 = 0$ in \mathbb{R} is $\dots\dots\dots$

(4) The additive inverse of $\sqrt{7} + \sqrt{3}$ is $\dots\dots\dots$

(5) If the dimensions of a rectangle is $(\sqrt{11} + 2)$ cm. and $(\sqrt{11} - 2)$ cm. , then its area = $\dots\dots\dots$ cm²

2 Choose the correct answer :

(1) If the mode of the values 8 , 7 , 8 , 5 , $x - 5$, 5 is 8 , then $x = \dots\dots\dots$

(a) 8

(b) 10

(c) 5

(d) 13

(2) The slope of the straight line passing through the two points $(-2, 2)$ and $(-8, 5)$ is $\dots\dots\dots$

(a) $\frac{7}{10}$

(b) $\frac{10}{7}$

(c) $\frac{6}{12}$

(d) -2

Algebra and Statistics

(3) If the volume of a cube is 27 cm^3 , then the sum of edges of this cube is cm.

- (a) 36 (b) 3 (c) 12 (d) 27

(4) The median of the values 31, 13, 9, 60, 1, 45, 4 is

- (a) 60 (b) 13 (c) 31 (d) 163

(5) $]-\infty, 0] = \dots\dots\dots$

- (a) \mathbb{R}_+ (b) \mathbb{R}_-
(c) set of non positive real numbers. (d) set of non negative real numbers.

[3] [a] Find the simplest form of : $\sqrt[3]{54} - \frac{1}{2}\sqrt[3]{16} + \sqrt[3]{-2}$

[b] If $x = \sqrt{5} + \sqrt{3}$ and $y = \frac{2}{\sqrt{5} + \sqrt{3}}$, find the value of : $\frac{x+y}{xy}$

[4] [a] Find the S.S. in \mathbb{R} of the inequality :

$-2 < 3x + 7 \leq 10$ and represent it on the number line.

[b] If $X =]-\infty, 5]$ and $Y =]1, 9[$ Find using the number line :

- (1) $X \cap Y$ (2) $X \cup Y$ (3) $X - Y$ (4) \bar{X}

[5] [a] If the volume of a sphere is $288\pi \text{ cm}^3$ find its area.

[b] The following table shows the frequency distribution of marks of 40 students in an algebra exam :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	9	12	x	4	40

(1) Find the value of x

(2) Find the arithmetic mean.

12 Port Said Governorate

Educational Directorate
Math Inspection



Answer the following questions :

[1] Choose the correct answer :

(1) The multiplicative inverse to the number $\frac{3}{\sqrt{2}}$ is

- (a) $\frac{\sqrt{2}}{3}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{\sqrt{2}}{2}$ (d) $2\sqrt{3}$

(2) The solution set of the equation : $x^3 = 8$ in \mathbb{R} is

- (a) \emptyset (b) $\{2\}$ (c) $\{-2\}$ (d) $\{0\}$

(3) $\mathbb{Q} \cup \mathbb{Q} = \dots\dots\dots$

(a) \emptyset

(b) 0

(c) \mathbb{R}

(d) \mathbb{Z}

(4) The conjugate of the number $\sqrt{2} - \sqrt{3}$ is

(a) $\sqrt{2} + \sqrt{3}$

(b) $\sqrt{3} - 2$

(c) $2 - \sqrt{3}$

(d) $-\sqrt{2} + \sqrt{3}$

(5) The arithmetic mean of the values 2 , 5 , 8 is

(a) 5

(b) 4

(c) 3

(d) 2

2] Complete each of the following :

(1) The mode of the values 5 , 5 , 6 , 4 , 5 is

(2) The slope of the straight line which parallel to the x -axis =

(3) $[2, 8[\cup \{8\} = \dots\dots\dots$

(4) $\sqrt[3]{\dots\dots\dots} = \sqrt{4}$

(5) A cube of side length 3 cm. , then its volume = cm^3 **3] [a] Find the solution set in \mathbb{R} to the following inequality in the form of an interval :**

$x - 2 > 3$

[b] If $x = \sqrt{3} + \sqrt{2}$ and $y = \sqrt{3} - \sqrt{2}$ Find the value of : $x \times y$ **4] [a] Without using calculator , simplify : $\sqrt{2} + \sqrt{8} - \sqrt{18}$** **[b] Find the slope of the straight line which passes through the two points (2 , 3) and (1 , 2)****5] [a] Write three ordered pairs satisfy the relation : $x + y = 5$** **[b] Find the arithmetic mean for the following frequency distribution :**

Sets	2 -	4 -	6 -	Total
Frequency	2	4	2	8

13 Kafr El-Sheikh Governorate

General Maths Supervision

**Answer the following questions :****1] Choose the correct answer :**

(1) The mean of the values : 21 , 19 , 27 , 3 , 5 is

(a) 90

(b) 32

(c) 18

(d) 15

Algebra and Statistics

(2) If $x = \sqrt{7} - \sqrt{5}$ and $y = \sqrt{7} + \sqrt{5}$, then $(xy)^3 = \dots\dots\dots$

- (a) 4 (b) 6 (c) 8 (d) 9

(3) $[1, 3] - \{1, 3\} = \dots\dots\dots$

- (a) $]1, 3[$ (b) $] -1, -3[$ (c) $[1, 3[$ (d) $] -1, 3[$

(4) $\mathbb{R} = \dots\dots\dots$

- (a) $[0, \infty]$ (b) $] -\infty, \infty[$ (c) $[0, \infty[$ (d) $] -\infty, 0]$

(5) If A (2, 7) and B (5, -2), then the slope of $\overline{AB} = \dots\dots\dots$

- (a) -2 (b) 2 (c) -3 (d) 3

2 Complete :

(1) The volume of a sphere whose diameter length is 6 cm. = $\dots\dots\dots \pi \text{ cm}^3$

(2) The S.S. for the equation $x^3 + 8 = 0$ in \mathbb{R} is $\dots\dots\dots$

(3) If $(k, 2k)$ satisfies $x + y = 15$, then $k = \dots\dots\dots$

(4) The slope of any line parallel to the x -axis = $\dots\dots\dots$

(5) If the area of one face of a cube = 9 cm^2 , then its volume = $\dots\dots\dots \text{ cm}^3$

3 [a] Simplify : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \sqrt[3]{16}$

[b] Find in \mathbb{R} the S.S. of the following inequality : $-1 \leq 5x + 4 \leq 14$
 , then represent the S.S. on the number line.

4 [a] If $x = \sqrt{6} + \sqrt{5}$ and $y = \sqrt{6} - \sqrt{5}$ Find : $(x + y)^2$

[b] If $X =] -3, 2]$ and $Y =] -1, 5]$, then find :

- (1) $X \cap Y$ (2) $X \cup Y$

5 [a] Represent the relation $x + y = 3$ on the coordinate plane.

[b] Find the mean for the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

14 Beni Suef Governorate

Directorate Of Official Language School
Education administration

Answer the following questions :

1 Choose the correct answer :

- ① The irrational number lies between -2 and -1 is
- (a) -3 (b) $-1\frac{1}{2}$ (c) $-\sqrt{3}$ (d) $\sqrt{2}$
- ② $\sqrt[3]{x^6} = \sqrt{\dots}$
- (a) x^3 (b) x^2 (c) x (d) x^4
- ③ $|-5| - |5| = \dots$
- (a) -10 (b) -5 (c) 0 (d) 10
- ④ $(3, 2)$ does not satisfy the relation
- (a) $y + x = 5$ (b) $3y - x = 3$ (c) $y + x = 7$ (d) $x - y = 1$
- ⑤ If the volume of a right circular cylinder is $90\pi \text{ cm}^3$ and its height is 10 cm , then the radius length of its base equals cm.
- (a) 3 (b) 4.5 (c) 5 (d) 9

2 Complete :

- ① If $(a, 3)$ satisfies the relation $2x - y = 7$, then $a = \dots$
- ② $\left(-\frac{5}{7}\right) \times \left(-\frac{7}{5}\right) = \dots$
- ③ If the arithmetic mean of the values $9, 6, 5, 14, x$ is 7 , then $x = \dots$
- ④ The point of intersection of the ascending and descending cumulative frequency curves determines on the set-axis.
- ⑤ If the sum of five numbers equals 30 , then the arithmetic mean of these numbers is

3 [a] Simplify to the simplest form : $\sqrt[3]{-16} + \frac{14}{\sqrt{7}} - \sqrt{28} + \sqrt[3]{54}$

[b] If $x = \frac{4}{3 + \sqrt{5}}$ and $y = 3 + \sqrt{5}$, Find the value of : $x^2 + y^2$

- 4 [a] If $X = [-1, 4]$, $Y = [3, \infty[$ and $Z = \{3, 4\}$, find each of the following using the number line :

① $X - Y$ ② $Y \cap Z$

- [b] Find the solution set of the inequality $3 - 2x \leq 7$ in \mathbb{R} in the form of an interval, then represent the solution on the number line.

Algebra and Statistics

5 [a] Let A (2 , -1) , B (10 , 3) and C (2 , 3) , find the slope of each of : \overrightarrow{AB} and \overrightarrow{AC}

[b] The following table shows the frequency distribution of the weekly bonus of 100 workers in a factory :

Bonus in L.E.	20 -	30 -	40 -	50 -	m -	70 -
Number of workers	10	k	22	26	20	8

- ① Find the value of each of k and m
- ② Graph the frequency histogram , then find the mode value of the weekly bonus.

Assiut Governorate

Badr Language School



Answer the following questions :

1 Choose the correct answer from those given :

- ① If the volume of a cube is 27 cm^3 , then the area of one of its faces is
 (a) 3 cm^2 (b) 9 cm^2 (c) 36 cm^2 (d) 54 cm^2
- ② The S.S. of the equation : $x^2 + 3 = 0$ in \mathbb{R} is =
 (a) \emptyset (b) $\{-\sqrt{3}\}$ (c) $\{\sqrt{3}\}$ (d) $\{-\sqrt{3}, \sqrt{3}\}$
- ③ If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $(xy, x + y) =$
 (a) $(1, 2\sqrt{3})$ (b) $(-1, 2\sqrt{3})$ (c) $(5, 2\sqrt{3})$ (d) $(5, 9)$
- ④ If the median of the set of the values : $k + 1, k + 2, k + 5, k + 4, k + 3$ where k is a positive number is 13 , then $k =$
 (a) 2 (b) 5 (c) 10 (d) 13
- ⑤ If the mode of the set of values : 4 , 11 , 8 , $2x$ is 4 , then $x =$
 (a) 2 (b) 4 (c) 6 (d) 8

2 Complete :

- ① If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k =$
- ② $[2, 6] - \{2, 6\} =$
- ③ If the arithmetic mean of the values 9 , 6 , 5 , 14 , k is 7 , then $k =$
- ④ The slope of the straight line passing through the two points (2 , 6) and (-1 , 3) is
- ⑤ The multiplicative inverse of the number $\sqrt{3} - \sqrt{2}$ is (in the simplest form)

3 [a] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, find the value of : $\frac{x+y}{xy-1}$

[b] Find the S.S. of the inequality : $-5 \leq 2x - 3 < 5$ in \mathbb{R} , then represent it on the number line.

4 [a] Prove that : $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

[b] Represent graphically the relation : $y = 2 - x$

5 [a] If $X =]-\infty, 2[$ and $Y = [-1, 5]$ find as an intervals using the number line :

① $X \cup Y$

② $X \cap Y$

③ $X - Y$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50